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TEACHERS BELIEF SYSTEMS AND PRESCHOOL ATMOSPHERES.

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THIS STUDY INVESTIGATES THE EFFECT OF A TEACHER'S BELIEF OR CONCEPTUAL SYSTEM ON HIS TEACHING METHOD AND ON THE CLASSROOM ATMOSPHERE CREATED BY THAT TEACHING METHOD. A BELIEF SYSTEM WAS CHARACTERIZED AS EITHER CONCRETE OR ABSTRACT. A CONCRETE SYSTEM WAS REPRESENTED BY A TENDENCY FOR THE TEACHER'S INSTRUCTIONAL APPROACH TO BE MORE STRUCTURED, MORE INVARIANT, AND LESS FLEXIBLE THAN THE APPROACH OF A TEACHER MANIFESTING AN ABSTRACT SYSTEM. TEACHERS WERE GIVEN THE "THIS I BELIEVE" TEST (TIB) AND THE "CONCEPTUAL SYSTEMS TEST" (CST) TO INDICATE WHICH BELIEF SYSTEM THEY WOULD BE PLACED INTO, NAMELY, (1) CONCRETENESS-ORIENTED, (2) ABSTRACTNESS-ORIENTED, AND (3) IN-BETWEEN. TEN TEACHERS WERE SELECTED FOR EACH CATEGORY. THESE 30 FEMALE HEAD START TEACHERS WERE OBSERVED WHILE CONDUCTING THEIR CLASSES OF PRESCHOOL CHILDREN AND WERE RATED ON A 26 DIMENSION CHART. EACH DIMENSION REPRESENTED EITHER A DESIRABLE OR AN UNDESIRABLE TEACHER TRAIT. IT WAS HYPOTHESIZED THAT TEACHERS IN CATEGORY (1), CONCRETENESS-ORIENTED, WOULD SCORE LOWEST ON DESIRABLE TRAITS AND HIGHEST ON UNDESIRABLE TRAITS, THAT ABSTRACTNESS-ORIENTED TEACHERS WOULD SCORE HIGHEST ON DESIRABLE TRAITS AND LOWEST ON UNDESIRABLE TRAITS, AND THAT THE IN-BETWEEN GROUP WOULD SCORE IN THE MIDDLE. THE RESULTS SUBSTANTIALLY SUPPORTED THIS HYPOTHESIS. (WD)

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Teachers Belief Systems and Preschool Atmospheres[1]

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2. Harvey (currently a Fellow at the Center for Advanced Study in the Behavioral Sciences), Prather and Hoffmeister are from the University of Colorado; White and Alter are from the University of Utah.

Among their many effects, an individual's beliefs direct him toward efforts at making his world consonant with them. Serving as a kind of evaluative prism or program through which the world is coded and processed into psychological significance, they dispose the individual not only to selective, channelized and often distorted perception and thought, but also, wittingly and unwittingly, to attempts at shaping or modifying the social environment to accord with them. The degree of congruity-incongruity between an individual's system of beliefs and his personally relevant environment is a major determinant of the quality and intensity of affect he experiences. Perceived congruity tends to result in positive affect - such as feelings of success and positive regard toward the self, other persons and objects, included in the congruous relationship - while perceived incongruity tends to produce the opposite hedonic effects (Harvey, 1962, 1965; Harvey & Clapp, 1965; Harvey, Hunt & Schroder, 1961; Harvey, Kelley & Shapiro, 1957; Hunt, 1961; Merton, 1949).

Individuals vary, of course, in the nature of the belief-standards to which they seek to match the social world, in the amount of congruity they seek, in the styles of establishing and maintaining such belief-environment accord and hence in their affective and behavioral response to deviant events and situations. Patterned variation between individuals along these and related dimensions of their conceptual or belief systems may, in fact, be taken as major definers of their personality.

Applied to the present problem, this means that teachers of differing belief or personality systems should differ in the goals, social milieu, and behavior they seek for and from their students and hence, knowingly or unknowingly, in the values and content they communicate, in their styles of communication and in their reactions to student adherence to or departure from the standards embodied in their beliefs. For example, teachers of more fixed and categorical belief systems, among other things, should, more than their counterparts, impose predetermined goals upon the students, provide structure and detailed means for their attainment, be less tolerant of student deviation from their goals and standards and, consequently, react more strongly and invariantly to such deviation. A test of some of the more specific aspects of this general hypothesis was the purpose of this study. More specifically, groups of teachers differing in the concreteness-abstractness of their conceptual or belief systems were observed and rated by trained judges on a number of dimensions relating to their interaction with preschool children and the atmosphere they created in the classrooms.

Concreteness-abstractness refers to a general, and presumably more or less standardized, way an individual articulates and organizes his concepts of relevant aspects of his environment (Harvey, et al., 1961). From a series of studies we have found greater concreteness of these mediational linkages, in contrast to greater abstractness, to be manifested in several ways, including: (1) a simpler cognitive structure, comprised of fewer dif-

ferentiations and more incomplete integrations of certain concept domains (Harvey, 1965 b; Harvey, Wyer, & Hautoluoma, 1963; Reich, Harvey & Wyer, 1966); (2) a greater tendency toward polarized evaluations, viz., good-bad, right-wrong, etc. (White & Harvey, 1965); (3) a greater dependence on authority-related cues as guidelines to belief and action (Harvey, 1964; Tiemann, 1965); (4) a greater intolerance of ambiguity, expressed in higher scores on such measures as the F Scale and Dogmatism Scale, and in the tendency to form judgments of a novel situation more quickly (Harvey, 1965 b); (5) a greater need for or tendency toward cognitive consistency and greater arousal and change from the experience of cognitive dissonance (Harvey, 1965 a; Ware & Harvey, 1965); (6) a greater inability to change set and hence greater stereotypy in the solution of more complex and changing problems (Felknor & Harvey, 1963; Harvey, 1965 b); (7) a poorer delineation between means and ends and hence a paucity of different methods of solving a problem or achieving a goal (Harvey, 1965 b); (8) a poorer capacity to "act as if," to assume the role of the other, or to think and act in terms of a hypothetical situation (Harvey, 1963; Harvey & Kline, 1965); and (9) holding opinions with greater strength and with greater certainty that the opinions will not change with time (Hoffmeister, 1965). Greater abstractness implies the reverse quantities on the above dimensions.

Headstart teachers differing in concreteness-abstractness according to two different measures were rated on 26 dimensions assumed to reflect educationally desirable and undesirable behavior toward their pre-school students. The rating categories were (1) expression of warmth toward the

children, (2) perceptiveness of the children's wishes and needs, (3) flexibility in meeting the needs and interest of the children, (4) ability to maintain relaxed relationships with the children, (5) attention to the individual child, (6) task involvement, (7) enjoyment of teaching, (8) enlistment of child participation, (9) encouragement of individual responsibility, (10) encouragement of free expression of feelings, (11) encouragement of creativity, (12) teaching new concepts, (13) ingenuity in improvising teaching and play materials, (14) utilization of physical resources, (15) task effectiveness, (16) diversity of activities simultaneously permitted. (17) smoothness of classroom operation (especially in the transition from one activity to another), (18) consistency of rule enforcement, (19) use of functional explanation of rules, (20) use of non-functional explanation of rules, (21) use of unexplained rules, (22) rule orientation, (23) determination of classroom and playground procedure, (24) need for structure in teaching activities and relationships with children, (25) punitiveness, and (26) anxiety induced by the observers' presence.

Hypotheses

Only one hypothesis was offered:

The more abstract Ss will score higher than the more concrete Ss on dimensions 1-19 and lower than more concrete Ss on dimensions 20-26.

Certain corollaries of this general hypothesis were also tested.

Method

Subject Selection

Teachers were selected for subsequent observation on the basis of

their responses to the "This I Believe" (TIB) Test scored according to conceptual systems.

The TIB, developed specifically as a measure of conceptual or belief systems (e.g., Harvey, 1964, 1965, 1966; White & Harvey, 1965) requests S to indicate his beliefs about a number of socially and personally significant concept referents by completing in two or three sentences the phrase, "This I believe about _____," the blank being replaced successively by one of the referents. The referents employed in the present study were comprised of "religion," "friendship," "the American way of life," "sin," "education," "the family," "people on welfare," "punishment," "teaching," and "sex;" the last six substituted for the more standard referents with the aim of insuring their specific relevance to the Ss and to the task of teaching in the Head Start Program.

From the relativism, tautologicalness, novelty and connotative implications or richness of the completions, together with criteria implied in the earlier characterizations of concrete and abstract functioning (pp 3 and 4), respondents may be classified into one of the four principal belief systems posited by Harvey, et al. (1961) or into some admixture of two or more systems.

More specifically, Ss are classified as representing predominantly System 1, the most concrete mode of dimensionalizing and construing the world, if their sentence completions denote such characteristics as high absolutism, high tautologicalness, high frequency of platitudes and normative statements, high ethnocentrism, high religiosity, assertion of the superiority of American morality, and expression of highly positive attitudes toward institutional referents.

Subjects are categorized as representing System 2, the next to the lowest level of abstractness if, in addition to being highly evaluative and absolutistic, they express strong negative attitudes toward such referents as marriage, religion and the American way of life, the same referents toward which System 1 representatives manifest highly positive attitudes.

Responses to the TIB are scored as representing System 3 functioning, the next to the highest level of abstractness posited by Harvey, et al. (1961) if they indicate more relativism and less evaluativeness than Systems 1 and 2 and at the same time express strongly positive beliefs about friendship, people and interpersonal relations.

System 4 functioning, the highest of the four levels of abstractness, is indicated by TIB responses that imply a high degree of novelty and appropriateness, independence without negativism, high relativism and contingency of thought, and the general usage of multidimensional rather than unidimensional interpretive categories.

The TIB was administered to the 168 teachers participating in the Head Start training program conducted by the University of Colorado Extension Division during the summer of 1965. From among this number, no instances of System 2, the anti-authority orientation, and only 10 cases of System 4 functioning were found. Ten Ss each from System 1 and 3, selected from a somewhat larger sub-population of representatives of these systems, were added to the 10 System 4 representatives, for a total of 30 experimental Ss, all women.

An Additional Measure of Concreteness-Abstractness

In addition to the TIB, Ss completed an objective measure of concreteness-abstractness, the Conceptual Systems Test (CST), which was developed through Tryon's cluster and factor analysis (Tryon & Bailey, 1965,1966). Four factors were found which are theoretically consistent with the major characteristics of the four principal conceptual systems or levels of concreteness-abstractness posited by Harvey, et.al. (1961). These factors, as we have tentatively labeled them, together with some of their representative items, are:

1. Divine fate control or religious fundamentalism. This is assessed by such items as "There are some things which God will never permit man to know," "In the final analysis, events in the world will be in line with the master plan of God," and "I believe that to attain my goals it is only necessary for me to live as God would have me live."

2. Need for certainty or simplicity is expressed in response to such statements as "I prefer a story that has two themes rather than one that has five or six themes going at once," "People who seem unsure and uncertain about things make me feel uncomfortable," and "The effective person is one who does not hold conflicting beliefs."

3. Tolerance of complexity and uncertainty is based on such items as "I have so much trouble finding out what is or is not true that I can't understand how some people can feel so certain that they know the truth," "More often than not, I like some aspects of a person and do not like other aspects of him," and "I find that I cannot help analyzing almost everything I see and hear."

4. Relativism of truth is measured by such items as "There can be as many truths as there are individual points of view," "Man is the judge of the truth or untruth of his thoughts and behavior," and "Something is true or untrue depending on one's assumptions and the context."

Of the several ways these factors may be scored, the one utilized for this report is the overall abstractness score, represented by the sum of the item responses on a six point scale (from "Completely disagree" to "Completely agree") across the four factors.

Subjects

Ten representatives each of System 1, 3 and 4, as selected by the TIB, served as the experimental Ss. The mean score of each system on the CST, the second measure of abstractness, was: System 1, 3.01; System 3, 3.42; and System 4, 4.35.

All Ss had had prior teaching experience, System 1 teachers having taught on the average almost twice as long (10.1 years) as teachers from System 3 (5.8 years) or System 4 (5.4 years). However, only one System 1, two System 3 and three System 4 teachers had taught previously at the pre-school level. All Ss participated in a common one-week training program for Head Start teachers shortly before beginning their teaching of Head Start enrollees.

The geographic locations where the Ss were teaching and were observed ranged from urban housing projects to small towns which served predominantly rural children in their Head Start programs. In an attempt to control for the influence of different administrative structures and physical facilities upon

the teachers' classroom behavior, an equal number of teachers of each belief system were selected from a common administration and a common building whenever possible. In the three instances in which representatives of the three belief systems could not be obtained from the same program, a teacher was selected from an alternate program that served children comparable in socioeconomic backgrounds to the children being taught by teachers of the other two belief systems.

The rating scale

Teachers were rated on the 26 behavioral dimensions (listed on page 15) which had been selected primarily to reflect differences in the extent to which the teacher fostered independence, creativity, diversity of interests, enjoyment and intrinsic motivation among her students, ends which would be desirable among most educators of today.

Each of the behavioral dimensions was rated on a six-point scale: 3, 2 and 1 for "far," "considerable," and "slightly" above average respectively; and -1, -2 and -3 for "slightly," "considerably," and "far" below average respectively. The "average" category was omitted with the aim (by creating a forced choice condition) of avoiding the common tendency of observers (Os) to assign a wide variety of discriminably different behaviors to this category. Through a training program described below, an attempt was made to establish equivalent "averages" for all Os.

To encourage specificity of ratings, the rating scale provided space for each behavioral dimension to be rated under each of the school activities of free play, directed play, reading and/or story telling, formal instruc-

tion, outdoor activity, snack time and clean-up activity. Owing to variation in their schedules and practices, many teachers were rated in relation to different activities, no teacher being rated for all activities. In addition to each S being rated on the 26 dimensions for as many of the activities as occurred during the observation period, she was also assigned an overall rating on each dimension by each O. An overall rating, instead of being the arithmetic average of the multiple ratings of a dimension under the different activities, represented the overall impression of an O for that dimension based on his interpretation of his specific ratings together with unrated behavior he may have observed or other impressions he may have gathered. In some instances the overall ratings of a dimension would closely parallel the arithmetic average of ratings on that dimension and in other instances it would not. All statistical analyses were based on the overall ratings.

Training of observers and assessment of inter-observer reliability.

Each O participated in seven training sessions during which seven teachers representing the systems 1, 3 and 4 or admixtures thereof were observed and independently rated. Each observation session was followed by lengthy group discussion among the Os and other staff members aimed at increasing the reliability of the ratings through improving observation techniques and clarifying and standardizing meaning and usage of the rating categories.

Inter-judge reliability was assessed at two points, immediately following the last training session and immediately after completion of the

experimental observations, 3 weeks later. The mean of the correlations between the ratings of every pair of judges, based both times on observations of a System 3 teacher, was .69 and .68 for the earlier and later time respectively, values which, while lower than the ideal, are as high as could be expected given the number and diversity of Os.

Procedure

Each S was observed for approximately 2 1/2 hours by two Os on two occasions one week apart. The administrator of each Head Start program was asked to give the teachers advance notice of the dates they were to be observed; this was done in all but two instances.

The Os, in pairs, arrived before class began, introduced themselves, explained (with the aim of allaying the teacher's apprehension and fostering her cooperation) that the purpose of their visit was to gather examples of good teaching procedures which could be utilized as bases for subsequent training programs for Head Start teachers, and requested that they be allowed to observe but to remain as unobtrusive as possible in order to minimize the effects of their presence upon the children. To further Os' unobtrusiveness and simultaneously to increase the likelihood of an S following her planned program and, in so doing, emitting somewhat typical teaching behavior, each S was asked specifically not to converse with the Os during the class period.

The observations took place during normal classroom and playground activities on days free of special events in order to render the conditions of observations as comparable as possible for all Ss. As a further effort

toward maximizing the comparability of the judgments, each pair of Os was instructed to remain in the same vicinity at all times so that both would witness the same behavior of a teacher.

During the observation period Os independently rated S on all of the 26 dimensions under each of the activities that occurred during the period. Following the observation period, Os independently rated their overall impression of the S on each of the behavioral categories. Ratings were subsequently compared and discussed by each pair of Os and under the single condition where disagreement was found to exist due to different usage of the rating scale, but for no other reason, either O was free to make changes in his ratings. The purpose of this rather unorthodox procedure was to insure that Os were defining the rating categories in similar ways and in so doing to control for the variance that would otherwise result from difference in scale usage. This procedure was based on findings from two earlier studies (Harvey, 1963; Harvey & Kline, 1965) that post-observation reviews of their ratings by Os effectively counteracted their tendencies to drift away from the original criteria with the passage of time and the accumulation of experience. To avoid biasing the Os who were to observe the S on the second occasion, discussion concerning any S was restricted to the pair of Os who had observed her together.

Observer bias was further controlled and other desired experimental controls achieved through the policies of no O being paired with any other O more than once and no S being observed by the same O more than once. Subject bias resulting from spread of information about the study from one

teacher to another was minimized by the procedure of observing on the same day all teachers who were within the same school system.

All Os made their observations and ratings without any knowledge of the system classification of the teacher. Moreover, in order to prevent the Os from establishing particular sets and expectancies from repeated observation of Ss from any one belief system, each O observed a different random order of representatives of the three belief groupings.

Results

Relationships Among The Rating Dimensions

This was determined by a Tryon cluster analysis (Tryon & Bailey, 1965, 1966) based on the summed overall ratings of each of the 26 dimensions across the 30 teachers and the four judges. Inter-dimension correlations ranged from .01 to -.91, with a median correlation of .53 and with 55 of the 325 values attaining a magnitude of + or - .70 or above. All but one of the + or -.70 correlations are accounted for by the interrelatedness among 15 items, which cohered into one of two major clusters.

The first cluster, which may be termed dictatorialness, is comprised of 10 rating items. They and their factor loadings are need for structure (.97), flexibility (-.91), rule orientation (.89), encouragement of free expression of feelings (-.86), determination of procedure (.86), use of unexplained rules (.84), punitiveness (.82), encouragement of creativity (-.78), diversity of simultaneous activities (-.77) and encouragement of individual responsibility (-.71).

The second cluster, which centers around task orientation, consists of five items with factor leadings as indicated: warmth (.89), perceptiveness (.88), task effectiveness (.77), utilization of physical resources (.72) and ingenuity in improving teaching and play materials (.65).

With the exception of the correlation between anxiety from judges' presence and relaxed relationships with the children, none of the correlations among the 11 dimensions not included in one of the two major factors attained the magnitude of + or - .70. Hence, while more than half of the rating items represented different ways of tapping either of two common behavior patterns, some of the items reflected fairly independent teacher behavior.

Test of the Hypotheses

The general hypothesis was that more abstract Ss would score higher than the more concrete Ss on dimension 1-19 and lower than the more concrete teacher on dimensions 20-26.

System Differences

Performance on specific dimensions. Application of the general hypothesis to systems differences, as classified by the TIB, means that System 4 Ss should score higher than System 1 Ss on dimensions 1-19 and lower than System 1 teachers on dimensions 20-26. A corollary hypothesis is that System 3 teachers will score between Systems 1 and 4 on all 26 dimensions.

The mean overall rating of each system on each dimension is presented in Table 1. All means are based on the ratings of four Os owing to the re-

sults of a preliminary analysis of variance which showed that no significant differences existed between the ratings of the teachers at Time 1 and Time 2.

TABLE 1

Mean Rating of Each System (as measured by the TIB)
On Each Dimension

Rating Dimension	System I	System III	System IV
1. warmth	3.65	3.98	4.28
2. perceptiveness	3.38	3.90	4.15
3. flexibility	3.30	3.96	4.20
4. relaxed	4.12	3.50	4.72
5. attention to individual	3.68	4.10	4.00
6. involvement	3.90	4.12	4.15
7. enjoyment	3.68	4.02	4.12
8. enlistment child part.	4.25	4.25	4.32
9. encourage indiv. resp.	3.62	4.18	4.25
10. encourage express. feel.	3.48	3.92	4.20
11. encourage creativity	3.15	3.65	3.82
12. teach new concepts	3.95	4.05	4.32
13. ingenuity	3.30	3.85	4.28
14. utilization of resources	3.92	4.15	4.50
15. task effectiveness	3.82	4.22	4.35
16. diversity of activity	3.52	4.00	4.05
17. smoothness	3.85	4.02	4.15
18. consistency	3.95	4.02	4.08
19. functional explan. rules	3.38	3.85	3.78
20. non-functional explan.	3.02	2.98	2.88
21. unexplained rules	3.90	3.30	3.05
22. rule orientation	4.48	3.70	3.20
23. determination of procedure	4.40	4.25	3.62
24. need for structure	4.45	3.68	3.12
25. punitiveness	3.58	2.90	2.50
26. anxiety	3.28	2.78	2.60

Results in Table 1 show the predicted differences between Systems 1 and 4 on all 26 dimensions. In further accord with the predictions, System 3 Ss scored between Systems 1 and 4 on 23 of the 26 items. Page's (1963) test for ordered hypotheses for multiple treatments, a test for predictions of order and not of magnitude, showed that the number of dimensions on which the predicted ordering of systems was obtained is highly significant ($m = 26$, $n = 3$, $L = 361$, $P < .001$).

While no predictions were made concerning the magnitude of differences between systems on any specific dimension, a test of significance of magnitudes would yield additional relevant information. One-tailed t-tests between systems on overall ratings indicated, on the basis of 18 degrees of freedom, that System 1 and 4 teachers differed significantly on 15 dimensions. System 4 teachers expressed greater warmth toward the children ($t = 1.73$, $P < .05$), showed greater perceptiveness of the children's wishes and needs ($t = 1.98$, $P < .05$), were more flexible in meeting the interests and needs of the children ($t = 2.40$, $P < .025$), maintained more relaxed relationships with the children ($t = 2.52$, $P < .025$), were more encouraging of individual responsibility ($t = 1.83$, $P < .05$), gave greater encouragement to free expression of feelings ($t = 2.15$, $P < .025$), were more encouraging of creativity ($t = 1.85$, $P < .05$), displayed greater ingenuity in improvising teaching and play materials ($t = 3.17$, $P < .005$), were more effective in the utilization of physical resources ($t = 1.73$, $P < .05$), invoked unexplained rules less frequently ($t = 2.35$, $P < .025$), were less rule oriented ($t = 3.40$, $P < .001$), were less determining of classroom and playground procedure ($t = 2.00$, $P < .05$),

manifested less need for structure (t = 2.89, P<.005), were less punitive (t = 2.96, P<.005), and were less anxious about Os' presence (t = 2.11, P<.025).

System 3 teachers differed significantly from System 1 Ss on eight dimensions. The former were more flexible in meeting the needs and interests of the children (t = 1.95, P<.05), were more encouraging of individual responsibility (t = 2.04, P<.05), were more task effective (t = 1.94, P<.05), permitted greater diversity of activities (t = 1.76, P<.05), invoked unexplained rules less frequently (t = 1.93, P<.05), were less rule oriented (t = 2.12, P<.025), manifested less need for structure (t = 1.80, P<.05), and were less punitive (t = 1.94, P<.05).

System 3 and System 4 Ss differed significantly only on one dimension; the latter were significantly less determining of the classroom and playground procedures (t = 1.90, P<.05).

Dictatorialness and task orientation. The differences on the specific behavioral dimensions may be summarized and highlighted by a between-systems comparison on the two major factors extracted from the rating dimensions. With the exception of relaxed relationships with the children and anxiety from Os' presence, all of the specific dimensions on which Systems 1 and 4 differed significantly were contained within either the factor of dictatorialness or task orientation.

System 1 teachers were significantly more dictatorial than representatives of either System 3 (t = 2.17, P<.025) or System 4 (t = 2.92, P<.005) and at the same time significantly less task oriented than teachers from

System 3 (t = 1.73, P<.05) or System 4 (t = 2.42, P<.025). There were no significant differences between Systems 3 and 4 on either factor although System 3 teachers tended to be somewhat more dictatorial and less task oriented.

Differences Between Levels of Abstractness Derived from the CST

Performance on specific dimensions. The abstractness scores from the CST were divided into three levels of High, Middle and Low, 10 scores in each group, and t-tests were computed between the means of these groups for each of the 26 teacher behavior dimensions.

Results in Table 2 (page 19) show that on all but four of the 26 dimensions, enlistment of child participation, teaching new concepts, smoothness of operations and consistency of rule enforcement, the High Abstract teachers out-performed the Low Abstract teachers. In further support of the hypothesis, the Middle Abstract were rated more favorably than the Low Abstract group but less favorably than the High Abstract group on 20 of the 26 dimensions. Page's (1963) test showed the frequency of predicted orderings to be significant (m = 26, n = 3, L = 341, P<.001).

While the number of predicted orderings was significant, the magnitude of the difference between the three CST levels, as assessed by t-tests, attained significance in only five instances. The High Abstract Ss were less determining of procedure than the Low Abstract Ss (t = 1.83, P<.05) and manifested greater ingenuity in improvising play and teaching materials than either the Low Abstract (t = 4.44, P<.001) or the Middle Abstract teachers (t = 1.86, P<.05); and the Middle Abstract group permitted greater diversity

of activity ($\underline{t} = 1.89$, $\underline{P} < .05$) and displayed more ingenuity in improvising play and teaching materials ($\underline{t} = 1.93$, $\underline{P} < .05$) than did the Low Abstract group.

Table 2

Mean Rating of the Low, Middle and High Abstract Teachers
(as measured by the CST)
On Each of the Dimensions

Rating Dimension	Low	Middle	High
1. warmth	3.62	4.10	4.17
2. perceptiveness	3.50	3.90	4.02
3. flexibility	3.52	3.90	4.05
4. relaxed	4.28	4.62	4.45
5. attention to individual	3.78	3.98	4.02
6. involvement	3.92	4.05	4.20
7. enjoyment	3.78	4.00	4.05
8. enlistment child part.	4.38	4.35	4.10
9. encourage indiv. resp.	3.98	4.00	4.08
10. encourage express. feel.	3.75	3.95	3.90
11. encourage creativity	3.20	3.62	3.80
12. teach new concepts	4.38	3.92	4.02
13. ingenuity	3.20	3.80	4.42
14. utilization of resources	3.88	4.42	4.28
15. task effectiveness	4.02	4.08	4.30
16. diversity of activity	3.50	4.05	4.02
17. smoothness	4.15	3.80	4.08
18. consistency	4.15	4.10	3.80
19. functional explan. rules	3.80	3.60	3.60
20. non-functional explan.	3.15	2.95	2.78
21. unexplained rules	3.70	3.22	3.32
22. rule orientation	4.22	3.65	3.50
23. determination procedure	4.40	4.12	3.75
24. need for structure	4.15	3.70	3.40
25. punitiveness	3.20	2.90	2.88
26. anxiety	3.10	2.80	2.75

Dictatorialness and task orientation. Abstractness scores from the CST correlated .30 ($P<.05$) with each of these factors, meaning, because of the direction of scoring, that higher abstractness accompanied the tendency to be less dictatorial and more task oriented in the teaching of the Head Start children.

Discussion

The results are consistent in showing that the more abstract teachers differ markedly from the more concrete Ss in their teaching approaches and in the classroom atmospheres they generated for their Head Start students. Two important factors, the selective process inherent in the choice of becoming a Head Start teacher and the one week training program in which all teachers participated, should have operated to produce greater similarities in teaching styles and behavior toward children among our Ss than exist among teachers selected randomly from the different belief systems and/or levels of abstractness. Despite this, the more abstract teachers in this study were clearly superior to the more concrete teachers in the extent to which they produced educationally desirable atmospheres in their classrooms. Moreover, this superiority existed despite, or possibly because of, the greater teaching experience of the System 1 Ss.

We can only conjecture at this point on the differential effect of the different atmospheres, and hence of teacher differences in concreteness-abstractness, upon the learning and behavior of the children. The answer to this, a truly significant educational question, can come only from study of the children who have been taught by teachers differing in abstractness.

Although both the TIB and CST predicted significantly differential performance in the classroom, the results point clearly to the greater superiority of the TIB. It is possible this superiority may be reduced or eliminated by a different scoring method of the CST now being tested, one which is based on a profile of factors and categorizing of Ss into profile groupings rather than on any single factor or summation of factors.

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